

REMARKS

Claims 1-5, 7-11, 13-16, and 21-32 are pending. Claims 1-4, 7-10, and 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,078,953 to Vaid et al. in view of U.S. Patent 6,513,031 B1 to Fries et al. Claims 5, 11, 16 and 21-26 stand rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent 6,078,953 to Vaid in view of U.S. Patent 6,513,031 B1 to Fries and U.S. Patent 5,276,677 to Ramamurthy et al.

Reconsideration is requested. No new matter is added. The specification is amended. The rejections are traversed. Claims 1, 5, 7, 11, 13, and 16 are amended. Claims 1-5, 7-11, 13-16, and 21-32 remain in the case for consideration.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 103(a)

Claim 1 is directed toward a computer-implemented method for enforcing policy over a computer network, the method comprising: selecting a dictionary, the dictionary including a plurality of concepts, one concept identified as a maximal element, and a plurality of chains connecting the maximal element to other concepts in the directed set; selecting a set of chains to form a basis; selecting at least one concept in the dictionary; creating a state vector in a topological vector space for the selected concepts, wherein each state vector includes at least one measure of how concretely the concept is represented in each chain in the basis; assembling a first subset of the state vectors in the topological vector space into a template, the topological vector space including at least one vector not in the template; assigning a policy to the computer network; monitoring a content stream on the computer network to construct an impact summary including a second subset of the vectors in the topological vector space; and enforcing the policy when the impact summary is within a threshold distance of the template.

Claim 7 is directed toward a computer-readable medium containing a program operable on a computer to enforce policy over a computer network, the program comprising: selection software to select a dictionary, the dictionary including a plurality of concepts, one concept identified as a maximal element, and a plurality of chains connecting the maximal element to other concepts in the directed set; selection software to select a set of chains to form a basis; selection software to select at least one concept in the dictionary; creation software to create a state vector in a topological vector space for the selected concepts, wherein each state vector includes as its components measures of how concretely the concept is represented in each chain

in the basis; definition software to define a template, the template including a first subset of vectors in the topological vector space, the topological vector space including at least one vector not in the template; assignment software to assign a policy to the computer network; monitoring software to monitor a content stream on the computer network to construct an impact summary including a second subset of the vectors in the topological vector space; and enforcement software to enforce the policy when the impact summary is within a threshold distance of the template.

Claim 13 is directed toward an apparatus for enforcing policy over a computer network, the apparatus comprising: a computer; a directed set stored in the computer including a plurality of concepts, one concept identified as a maximal element, and a plurality of chains stored extending from the maximal element to other concepts; a basis including a subset of the plurality of chains; for at least one concept in the directed set, a state vector in a topological vector space, wherein each state vector includes at least one measure of how concretely the concept is represented in each chain in the basis; a template stored in the computer, the template including a first subset of the state vectors in the topological vector space, the topological vector space including at least one state vector not in the template; a policy associated with the template; a monitor installed in the computer adapted to monitor a content stream in the computer network to construct an impact summary including a second subset of the state vectors in the topological vector space; and a policy enforcer adapted to enforce the policy when the monitor determines the impact summary to be within a threshold distance of the template.

Claims 1, 7, and 13 have been amended to make clear that the semantic content of the vectors that form the template used in the present invention are different than the vectors used in Fries. Support for these changes are found in the specification of U.S. Patent Application Serial No. 09/653,713, titled "INTENTIONAL STANCE CHARACTERIZATION OF A GENERAL CONTENT STREAM OR REPOSITORY," (the Intentional Stance application) which is incorporated by reference on page 1, line 18 and on page 2, line 7 of the present application.

Support for the amended claims is also found in the specification of U.S. Patent Application Serial No. 09/512,963, titled "CONSTRUCTION, MANIPULATION, AND COMPARISON OF A MULTI-DIMENSIONAL SEMANTIC SPACE," (the Construction application). The Applicant intended the incorporation by reference on page 1, line 18 to incorporate all of the previously identified patent applications into this patent application. But if

the Examiner believes that only the Intentional Stance application is incorporated by reference in the present application, the Construction application is still incorporated by reference in the present application. Because the Intentional Stance application is clearly incorporated by reference in the present application, everything in the Intentional Stance application is included in the present application. On page 3, line 15 of the Intentional Stance application the Construction application is incorporated by reference. Thus the Construction application is also incorporated into the present application. To make this clearer, the specification is amended to describe the Intentional Stance application as incorporating by reference the Construction application. For the Examiner's reference, copies of these two patent applications are attached hereto.

The claims describe selecting a dictionary including a plurality of concepts, one concept identified as a maximal element, and a plurality of chains connecting the maximal element to other concepts in the directed set, as shown in FIG. 2 and described on page 4, line 30 to page 5, line 3 of the Intentional Stance application. In every dictionary there is a maximal element, such as "Thing" as used in FIG. 2. The concepts in the dictionary are organized as a directed set. This means that there is a hierarchical relationship between concepts that extend from every concept up to the maximal element. The hierarchical relationship between each concept and the maximal element are called chains.

After selecting a dictionary, a set of chains are selected to form a basis. This is shown in FIGs. 5A-5G, and described on page 12, lines 22-26 of the Construction application, where eight different chains are represented in the drawings. At least one concept is selected from the dictionary, as described on page 5, line 17 of the Intentional Stance application. The selected concepts form the semantic content the policy in the present application is designed to enforce.

Each selected concept is represented as a state vector, where each component of the state vector measures how concretely the concept is represented in a chain in the basis. This is described between page 13, line 30 and page 14, line 4 of the Construction application ("the concepts in the directed set are mapped to state vectors in multi-dimensional space, where a state vector is a directed line segment starting at the origin of the multi-dimensional space and extending to a point in the multi-dimensional space."). The distance between sets of vectors can then be measured. If the distance is small, the sets of vectors represent content that is closely related.

In contrast, Vaid teaches a system and method for monitoring quality of service in a network. Vaid uses a traffic management tool coupled to a firewall server. The traffic management tool includes a flow control module and a queueing control module. A bandwidth management tool classifies an information flow into portions, which are directed to the flow control module and the queueing control module.

Just as Vaid does not teach “a template including ‘a first subset of vectors in a topological vector space including at least one vector not in the template’”, the Applicant also believes that Vaid does not teach the additional elements in the claims. To support the obviousness rejection, the Examiner cites Fries for disclosing “a ‘support vector machine’ and querying using ‘semantic bits’”. But Fries also fails to teach the newly amended claim elements. Fries teaches a system from improving search area selection. Fries operates by parsing a search query and determining what specific categories of information (termed “goals” by Fries) the user is interested in.

It does not appear that Fries teaches the template of the present invention, and the claims are amended to make explicit what was already implicit in the present application. It should thus be clear that Fries fails to teach vectors as used in the present application. Merely teaching vectors with any arguable semantic content does not teach vectors explicitly constructed based on the selection of chains from a directed set.

Fries also fails to disclose a dictionary of a directed set of concepts with one concept identified as a maximal element. Fries does have a Topics Dictionary as shown in FIGs. 14A-14C. The Topics Dictionary of Fries identifies topics based on keywords that are entered into a search text. But unlike the present application, the Topics Dictionary is not a directed set with one element being a maximal element. Rather, the Topics Dictionary is a set of topics with associated keywords, as described on column 12, lines 8-13.

Similarly, Fries does not use basis chains connecting each element to the maximal element in the directed set. Because there is no directed set in Fries, there can be no basis chains to build the state vectors as required by the present application. Instead, on column 20, lines 60-61, Fries says that the goal vector is based on clue stream features.

While Fries uses a “semantic bit” in conjunction with goal vectors, this representation of semantic content and vectors is not adequate to make the present invention obvious. Fries use of the semantic bit is not relevant to its construction of the goal vectors. The goal vectors of Fries represent different content than the state vectors in the template of the present application.

Because neither Vaid, nor Fries teach all of the elements in the present invention, claims 1, 7 and 13 are patentable under 35 U.S.C § 103(a) over Vaid and Fries. Accordingly, claims 1, 7, and 13 are allowable. Dependent claims 2-5, 8-11, 14-16 and 21-32 are allowable for the same reasons and for additional reasons set forth below.

Claims 5, 11 and 16 stand rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent 6,078,953 to Vaid in view of U.S. Patent 6,513,031 B1 to Fries and U.S. Patent 5,276,677 to Ramamurthy et al. These claims are allowable under 35 U.S.C. § 103(a) because they are all dependent on claims 1, 7 and 13, which are allowable because they contain features that are not taught by Vaid, Fries, nor Ramamurthy.

Although the Applicant believes it unnecessary, the Applicant has amended claims 5, 11 and 16 in order to make explicit what was already implicit in the present application. While it could be argued that Ramamurthy teaches the concept of extrapolation generally, it cannot be said to teach the extrapolation of the present invention. Claims 5, 11 and 16 of present invention have been amended to make explicit that the extrapolation of how close the entire content stream is to the template is to be accomplished via an analysis of the impact summary.

Recall that the impact summary is a summary of content that is being accessed over a network and includes a subset of vectors in the topological vector space that also produces the template. Analysis of whether the entire content stream is within a threshold distance of the template is thus achieved by comparing the impact summary for a portion of the content stream to the template.

Ramamurthy does not describe such extrapolation of content. Instead, Ramamurthy predicts data flow using extrapolation. By monitoring traffic at proximate upstream nodes, Ramamurthy estimates how much traffic can be expected at a given node. While this is a form of extrapolation, it is different than the extrapolation that occurs in the present application. Ramamurthy is about predicting traffic flow, while the present application is about predicting content.

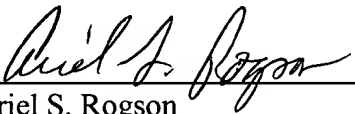
Furthermore, the present application uses a vector comparison in order to make the extrapolation about content. Ramamurthy provides no instruction for how extrapolation can be used to predict whether a content stream is within a threshold distance of a template. It only predicts whether the amount of traffic will exceed its capacity at a given node.

As claims 5, 11 and 16 include features not taught or suggested by Vaid, Fries, nor Ramamurthy, claims 5, 11 and 16 are patentable under 35 U.S.C. § 103(a) over Vaid, Fries and Ramamurthy. Accordingly, claims 5, 11 and 16 are allowable.

For the foregoing reasons, reconsideration and allowance of claims 1-5, 7-11, 13-16 and 21-32 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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